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## TENNESSEE VALLEY AUTHORITY

### Dam Safety Modifications at Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams

AGENCY: Tennessee Valley Authority.

ACTION: Amended Record of Decision.

SUMMARY: The Tennessee Valley Authority (TVA) is amending its July 2, 2013, Record of Decision (ROD) for the Final Environmental Impact Statement for Dam Safety Modifications at Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams. In the 2013 ROD, TVA decided to implement the dam safety modifications described in the preferred Alternative B, Permanent Modifications of Dam Structures: Combination of Concrete Floodwalls and Earthen Embankments. Based on the results of subsequent engineering and feasibility studies, TVA has revised its approach for the permanent modifications to incorporate the use of roller-compacted concrete (RCC) at Cherokee and Fort Loudoun Dams and increases in the elevations of modifications at Fort Loudoun, Tellico, and Watts Bar Dams. In May, 2014, TVA completed a Supplemental Analysis (SA) of the potential impacts of the proposed revisions to the dam safety modifications. Based on the Final Environmental Impact Statement (EIS) and the SA, TVA now amends the July 2013 ROD to incorporate the revised approach.

FOR FURTHER INFORMATION CONTACT: Charles P. Nicholson, NEPA Compliance Manager, Tennessee Valley Authority, 400 West Summit Hill Drive, WT 11D, Knoxville, Tennessee 37902-1499; telephone 865-632-3582, or email [cpnicholson@tva.gov](mailto:cpnicholson@tva.gov).

SUPPLEMENTARY INFORMATION: This notice is provided in accordance with the Council on Environmental Quality's regulations (40 CFR 1500 to 1508) and TVA's procedures for implementing the National Environmental Policy Act (NEPA). TVA is an agency and instrumentality of the United States, established by an act of Congress in 1933, to foster the social and economic welfare of the people of the Tennessee Valley region and to promote the proper use and conservation of the region's natural resources. A fundamental part of this mission was the construction and operation of an integrated system of dams and reservoirs. As directed by the TVA Act, TVA uses this system to manage the water resources of the Tennessee River for the purposes of navigation, flood control, and power production. Consistent with these purposes, TVA operates the system to provide a wide range of other benefits.

As the Federal agency responsible for the operation of numerous dams, and consistent with the Federal Guidelines for Dam Safety issued by the Federal Emergency Management Agency, TVA prepares for the worst case flooding event in order to protect against dam failure, loss of life, major property damage, and impacts to critical facilities. This worst case flooding event is known as the PMF, defined as the flood that may be expected from the most severe combination of critical meteorological and hydrological conditions that are reasonably possible in a particular area. Nuclear Regulatory Commission (NRC) nuclear plant operating regulations also require that nuclear plants be protected against the adverse effects of the PMF. TVA periodically reviews and revises its calculations of PMF elevations. During the most recent review (completed in 2008), TVA determined that the updated PMF elevations at Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams, as well as at TVA's Watts Bar and Sequoyah Nuclear Plants, were higher than previously calculated.

The differences in PMF elevations are sufficient to indicate that a PMF event could cause water to flow over the top of the dams, even with the floodgates wide open, possibly resulting in dam failure. Failure of one or more of these dams would result in extensive damage to buildings, infrastructure, property, and natural resources, as well as potential personal injury and loss of life.

In 2009, TVA implemented temporary measures at the four dams to remain consistent with Federal guidelines and to comply with nuclear operating regulations for safe operations of the river and reservoir system, and to minimize the potential effects of the PMF. These temporary measures consisted of raising the heights of the four dams by installing interconnected, fabric lined HESCO Concertainer® units filled with crushed stone on top of the earthen embankments of each dam. In a January 25, 2012 letter from NRC to TVA, NRC stated that the HESCO barriers were not capable of resisting impacts from large debris during a flood and are not acceptable as a long-term solution to protecting the dams, and downstream nuclear plants, during the PMF. At the time the NRC letter was received, TVA had not made any decisions about whether or how to replace the HESCO barriers. After receiving the letter, TVA made the commitment to NRC to develop and implement permanent dam safety modifications to replace the temporary measures at the four dams.

TVA issued the Final EIS for the permanent dam safety modifications in May 2013. In the July 2013 ROD, TVA announced its decision to implement Alternative B – Permanent Modifications of Dam Structures: Combination of Concrete Floodwalls and Earthen Embankments, and has begun constructing the permanent modifications.

## **Supplemental Analysis**

The SA addresses Revised Alternative B – Permanent Modifications of Dam Structures: Combination of Concrete Floodwalls, Earthen Embankments, and Roller-Compacted Concrete. Under Revised Alternative B, TVA would construct the permanent modifications at Cherokee Dam with RCC or a combination of RCC and earthen embankment. The 40-foot increase in the height of the south spillway training wall and associated backfill have been determined to be unnecessary and would not be constructed. At Fort Loudoun Dam, TVA would increase the elevation of the permanent modifications by 1.0 foot and the 2,600-foot FTL-3 concrete floodwall would be replaced with a 1,400-foot section of RCC located on the current roadbed of US Highway 321 between the south end of the US Highway 321 bridge over Fort Loudoun Dam and the US Highway 321 – Tellico Parkway intersection. This segment would be constructed after the Tennessee Department of Transportation completes the new US Highway 321 bridge located downstream of the dam and relocates traffic onto the new bridge and connecting roadway. A 250-foot section of earthen embankment would be constructed near the intersection of US Highway 321 and Tellico Parkway. Flood protection in the remainder of the original FTL-3 segment would be provided by the increased elevation of the reconstructed US Highway 321 and Tellico Parkway; the entrance road into the Tellico Recreation Area would be modified to match this increased elevation. The elevation of Tellico Segment T-1 would be increased by 1.1 foot. The permanent modifications to the other segments at Tellico Dam would be the same as described in the selected Alternative B. At Watts Bar Dam, the elevation of the earthen embankments would be increased by 0.1 foot and the elevation of the WB-3 concrete floodwall would be increased by 1.5 foot. TVA is also considering increasing the height of the earthen embankments at Watts Bar Dam by an additional 1.5 to 2.5 feet, and

increasing the height of the WB-3 concrete floodwall by 0.5 to 3.5 feet. These proposed actions are not among those included in this Record of Decision and are currently undergoing additional environmental analyses.

As described in the SA, available at [http://www.tva.com/environment/reports/dam\\_safety/index.htm](http://www.tva.com/environment/reports/dam_safety/index.htm), the proposed revisions to Alternative B would have no effect on most environmental resources. They do have the potential to affect cultural and historic resources, transportation, visual resources, recreation, and public safety. TVA has determined that these impacts would be short-term and minor and similar to or less than the impacts assessed for those resources in the Final EIS for Alternative B. Revised Alternative B would result in beneficial impacts to transportation at Fort Loudoun and Cherokee Dams and to public safety at Fort Loudoun compared to Alternative B due to reduced interference with traffic. Revised Alternative B would also reduce the impacts to visual resources at Cherokee and Fort Loudoun Dams.

### **Amended Decision**

TVA has decided to implement the Revised Alternative B – Permanent Modifications of Dam Structures: Combination of Concrete Floodwalls, Earthen Embankments, and Roller-Compacted Concrete. Revised Alternative B would result in fewer transportation and public safety impacts and minor beneficial impacts to visual resources in comparison to the previously selected Alternative B. Revised Alternative B would also result in a shorter overall construction period.

## **Mitigation Measures**

The July 2013 ROD lists mitigation measures associated with the selected Alternative B. These mitigation measures remain in effect and TVA has not identified the need for additional mitigation measures associated with Revised Alternative B.

Dated: July 7, 2014.

John J. McCormick, Jr.

Vice President, River Operations.

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